This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-23. (Canceled)

24. (Currently amended) A method for isolating ~~DNA~~a nucleic acid molecule encoding a homologue of human histamine H3 receptor comprising the steps of:

(a) mixing a nucleic acid molecule encoding human histamine H3 receptor ~~DNA~~ comprising an amino acid sequence of SEQ ID NO:7 with a sample comprising a nucleic acid molecule~~DNA~~ encoding a homologue of human histamine H3 receptor;

(b) allowing said nucleic acid molecule encoding a human histamine H3 receptor ~~DNA~~ to hybridize with said nucleic acid molecule ~~DNA~~ encoding a homologue of human histamine H3 receptor to form a hybridized nucleic acid ~~DNA~~ complex;

(c) isolating the hybridized nucleic acid ~~DNA~~ complex; and

(d) purifying the nucleic acid molecule ~~DNA~~ encoding a human histamine H3 receptor homologue,

wherein said histamine H3 receptor homologue comprises biological activity of a human histamine H3 receptor comprising an amino acid sequence of SEQ ID NO:7.

25. (Currently amended) The method according to claim 24 wherein said nucleic acid molecule encoding human histamine H3 receptor ~~DNA~~ has a nucleotide sequence of SEQ ID NO:5 or SEQ ID NO:6.

26. (Canceled)

27. (Currently amended) A method for producing a homologue of human histamine H3 receptor comprising the steps of:

(a) mixing a nucleic acid molecule encoding human histamine H3 receptor ~~DNA~~ comprising an amino acid sequence of SEQ ID NO:7 with a sample comprising a nucleic acid molecule~~DNA~~ encoding a homologue of human histamine H3 receptor;

(b) allowing said nucleic acid molecule encoding human histamine H3 receptor ~~DNA~~ to hybridize with said nucleic acid molecule ~~DNA~~ encoding a homologue of human histamine H3 receptor to form a hybridized nucleic acid ~~DNA~~ complex;

(c) isolating the hybridized nucleic acid ~~DNA~~ complex; and

(d) purifying the nucleic acid molecule~~DNA~~ encoding a human histamine H3 receptor homologue; and

(e) recombinantly expressing said nucleic acid molecule ~~DNA~~ encoding a human histamine H3 receptor homologue,

thereby producing said human histamine H3 receptor homologue, wherein said histamine H3 receptor homologue comprises biological activity of a human histamine H3 receptor comprising an amino acid sequence of SEQ ID NO:7.

28. (Currently amended) The method according to claim 27 wherein said nucleic acid molecule encoding human histamine H3 receptor ~~DNA~~ has a nucleotide sequence of SEQ ID NO:5 or SEQ ID NO:6.

29-33. (Canceled)

34. (Previously presented) The method according to claim 27 wherein said homologue has a greater affinity for a ligand than the polypeptide having an amino acid sequence of SEQ ID NO:7.

35. (Previously presented) The method according to claim 27 wherein said homologue has a reduced affinity for a ligand than the polypeptide having an amino acid sequence of SEQ ID NO:7.

36. (Previously presented) The method according to claim 34 or 35 wherein said ligand is histamine or methylhistamine.

37. (Canceled)

38. (Currently amended) A method for detecting the presence of a nucleic acid molecule encoding a human histamine H3 receptor ~~DNA~~ in a sample comprising nucleic acid molecules ~~acids~~, said method comprising the steps of:

(a) mixing said sample with a nucleic acid molecule having a nucleotide sequence of SEQ ID NO:5, a nucleotide sequence of SEQ ID NO:6, a nucleotide sequence of SEQ ID NO:8, or a nucleotide sequence encoding SEQ ID NO:7~~, or a fragment thereof~~; and

(b) detecting hybridization of said nucleic acid molecule to a nucleic acid molecule in said sample,

wherein said nucleic acid molecule encoding a human histamine H3 receptor comprises biological activity of a human histamine H3 receptor comprising an amino acid sequence of SEQ ID NO:7.

39. (Canceled)

40. (Currently amended) A kit for detecting the presence of a nucleic acid molecule encoding a human histamine H3 receptor ~~DNA~~ , wherein said nucleic acid molecule comprises a nucleic acid sequence ~~comprising a nucleic acid molecule~~ of SEQ ID NO:5, 6, or 8, or wherein said human histamine H3 receptor comprises an ~~a nucleic acid molecule encoding the~~ amino acid sequence of SEQ ID NO:7, wherein said nucleic acid molecule encoding a human histamine H3 receptor comprises biological activity of a human histamine H3 receptor comprising an amino acid sequence of SEQ ID NO:7~~or a fragment thereof,~~ and optionally a container.

41. (New) The method of claim 24 wherein said biological activity is binding to a histamine H3 receptor-specific ligand.

42. (New) The method of claim 41 wherein said ligand is thioperamide or alpha-methylhistamine.

43. (New) The method of claim 24 wherein said biological activity is inhibition of adenylate cyclase in response to histamine.

44. (New) The method of claim 24 wherein said biological activity is incorporation of GTP-gamma-S.

45. (New) The method of claim 27 wherein said biological activity is binding to a histamine H3 receptor-specific ligand.

46. (New) The method of claim 45 wherein said ligand is thioperamide or alpha-methylhistamine.

47. (New) The method of claim 27 wherein said biological activity is inhibition of adenylate cyclase in response to histamine.

48. (New) The method of claim 27 wherein said biological activity is incorporation of GTP-gamma-S.

49. (New) The method of claim 38 wherein said biological activity is binding to a histamine H3 receptor-specific ligand.

50. (New) The method of claim 49 wherein said ligand is thioperamide or alpha-methylhistamine.

51. (New) The method of claim 38 wherein said biological activity is inhibition of adenylate cyclase in response to histamine.

52. (New) The method of claim 38 wherein said biological activity is incorporation of GTP-gamma-S.

53. (New) The kit of claim 40 further comprising a means for detecting said biological activity of a human histamine H3 receptor comprising an amino acid sequence of SEQ ID NO:7

54. (New) The kit of claim 53 wherein said means is a histamine H3 receptor-specific ligand.